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Education: University Denis Diderot (Paris 7, France)

2000: **Ph.D.**: "Towards the regionalization of sources and sinks of greenhouse gases: analysis of the synoptic variability at Mace Head observatory, Ireland".

1995: **M.S.**: Physical methods in remote sensing, University of Paris 7, France

Work Experience

2003-present: **Research Associate** at **Lawrence Berkeley National Laboratory**, USA with Margaret Torn.

- Development of instrumentation for precise measurements of trace gas species.
- ARM-Carbon project.

2001 - 2003: **Postdoctoral fellow** at **University of California, Berkeley**, USA with Inez Fung.

- Modeling of atmospheric transport using NCAR MATCH model.
- Impact of climate change on aviation in North America.

2000 - 2001: **Postdoctoral fellow** at **University of Galway**, Ireland with professor Gerard Jennings.

- Measurements of radon-222 efflux in Ireland.
- Regionalization of the Irish greenhouse gas emissions.
- Responsible for the back trajectory model at LSCE (HYSPLIT4).

1997 - 2000: **Ph.D.** at **CEA/LSCE** (Commissariat à l'Energie Atomique/Laboratoire des Sciences du Climat et de l'Environnement) under the supervision of Philippe Ciais and Patrick Monfray.

- Management of field campaigns,
- Monitoring of atmospheric concentrations at Mace Head observatory (measurements, calibration, data quality),
- Estimation of greenhouse gas emission fluxes,
- Participation in international meetings,
- Annual reports and scientific publications.

1996 - 1997: High frequency measurements campaign of CO₂ and isotopes ¹³C and ¹⁸O at the Mace Head atmospheric field research station (Ireland), in co-operation with **Galway University College** (Ireland) and **Centre des Faibles Radioactivités** (France) as part of the ESCOBA European project (European Study of Carbon in Ocean, Biosphere and Atmosphere).

July to September 1995:

Forest Remote Sensing at *Kourou* (French Guyana) **ENGREF** Laboratory: "Contribution of middle infrared wavelengths to mapping deforestation along *Maroni* river".

March to June 1995:

Space Oceanography at *Brest* (France) **IFREMER** Laboratory: "Wind/wave structures in tropical cyclones observed with micro-wave instruments". *Doc. Trav. DRO-OS*, vol. 95-11, 1995

Conference Presentation

- **Biraud S.**, W. J. Riley, M. L. Fischer, M. S. Torn, and J. A. Berry, Spatially Distributed CO₂, Sensible, and Latent Heat Fluxes over the Southern Great Plains (poster presentation), *7th International Carbon Dioxide Conference (ICDC)*, **Boulder, Colorado, USA, September 25-30, 2005**.
- **Biraud S.**, W. J. Riley, M.L. Fischer, M. S. Torn, and H.S. Cooley, Estimating Regional CO₂ Exchange over the Southern Great Plains (poster presentation), *American Geophysical Union (AGU)*, **San Francisco, California, USA, December 13-17 2004**.
- **Biraud S.**, I. Fung, Can a decrease in anthropogenic CO₂ emissions from the former Soviet Union be seen in the continuous record at Point Barrow, Alaska? (poster presentation), *American Geophysical Union (AGU)*, **San Francisco, California, USA, December 6-10 2002**.
- **Biraud S.**, Quantification of CO₂, CH₄ and N₂O emissions over Ireland from atmospheric observations at Mace Head and radon-222 efflux measurements (oral communication), *National Oceanic and Atmospheric Administration (NOAA)*, **Boulder, Colorado, USA, February 19 2002**.
- **Biraud S.**, G. Ielsch, Sources of Carbon Dioxide, Methane, Nitrous Oxide, and Chloroform over Ireland inferred from Radon 222 and Radon 220 at Mace-Head (oral communication), *American Geophysical Union (AGU)*, **San Francisco, California, USA, December 10-14 2001**.
- **Biraud S.**, P. Ciais, M. Ramonet, V.Kazan , P. Simmonds and G. Jennings, Quantification of carbon dioxide, methane, nitrous oxide, and chloroform emissions over Ireland from atmospheric observations at Mace Head (poster presentation), *6th International Carbon Dioxide Conference*, **Sendai, Japan, October 1-5, 2001**.
- **Biraud S.**, P. Ciais, M. Ramonet, P. Simmonds, V. Kazan, P. Monfray, S. O'Doherty, T. G. Spain and S. G. Jennings, Greenhouse gases emissions at national scale using an atmospheric approach (oral communication), *annual Aerocarb meeting*, **Autrans, France, March 12-16 2001**.
- **Biraud S.**, P. Ciais, and M. Ramonet, Why setting up a greenhouse gases observatory in New Caledonia? (oral communication), seminar at *Institut pour la Recherche et le Développement (IRD)*, **Nouméa, New Caledonia, December 5 2000**.
- **Biraud S.**, Towards the regionalization of sources and sinks of greenhouse gases: analysis of the synoptic variability at Mace Head observatory, Ireland (oral communication), *University Paris VII, Paris, France, November 20 2000*.
- **Biraud S.**, P. Ciais, M. Ramonet, P. Simmonds, V. Kazan, P. Monfray, S. O'Doherty, T. G. Spain and S. G. Jennings, Greenhouse gases emissions over Western Europe and Ireland (oral communication), *American Geophysical Union (AGU)*, **San-Francisco, California, USA, December 13-17 1999**.
- **Biraud S.**, P. Ciais, M. Ramonet, P. Simmonds, V. Kazan, P. Monfray, S. O'Doherty, T. G. Spain and S. G. Jennings, Greenhouse gases emission fluxes over Western Europe (oral communication), *workshop organized by Meteo-France*, **Toulouse, France, December 9-10 1999**.
- **Biraud S.**, P. Ciais, and P. Monfray, CO₂ measurements over Oceanic and continental Europe (poster presentation), *5th International Carbon Dioxide Conference*, **Cairns, Australia, September 8-12 1997**.

Publications

1. **Biraud S.**, P. Ciais, M. Ramonet, P. Simmonds, V. Kazan, P. Monfray, S. O'Doherty, T.G. Spain and S.G. Jennings., European greenhouse gas emissions estimated from continuous atmospheric measurements and radon 222 at Mace Head, Ireland, *Journal of Geophysical Research*, 105, 1351-1366, 2000.
2. Derwent R.G., D.B. Ryall, A.J. Manning, P.G. Simmonds, S. O'Doherty, **S. Biraud**, P. Ciais, M. Ramonet and S.G. Jennings, Continuous observations of carbon dioxide at Mace Head, Ireland from 1994-1999 and its net European ecosystem exchange, *Atmospheric Environment*, 36, 2799-2807, 2002.
3. **Biraud S.**, P. Ciais, M. Ramonet, P. Simmonds, V. Kazan, P. Monfray, S. O'Doherty, T.G. Spain and S.G. Jennings. Sources of Carbon Dioxide, Methane, Nitrous Oxide, and Chloroform over Ireland inferred from Radon 222 and Radon 220 at Mace-Head, *Tellus*, 54B, 41-60, 2002.
4. Ramonet M., P. Ciais, I. Nepomniachii, K. Sidorov, R.E.M. Neubert, D. Picard, V. Kazan, **S. Biraud**, M. Gusti, E.D. Schulze and J. Lloyd. Three years of aircraft based trace gas measurements over Fyodoroskye southern taiga forest, 300 km North-West of Moscow, *Tellus*, 54B, 713-734, 2002.
5. Angert A., **S. Biraud**, C. Bonfils, W. Buermann, and I. Fung. CO₂ seasonality indicates origins of post-Pinatubo sink, *Geophysical Research Letters*, 31, L11103, 2004.
6. Bonfils C., A. Angert, C. Henning, **S. Biraud**, S.C. Doney, and I. Fung. Extending the record of photosynthetic activity in the eastern United States into the pre-satellite period using surface diurnal temperature range, *Geophysical Research Letters*, 32, L08405, 2005.
7. Angert A., **S. Biraud**, C. Bonfils, C. Henning, W. Buermann, J. Pinzon, C.J. Tucker, and I. Fung. Drier summers cancel out the CO₂ uptake enhancement induced by warmer springs, *Proceedings of the National Academy of Sciences*, 102, 10823-10827, 2005.
8. Still, C.J., W.J. Riley, **S. Biraud**, D.C. Noone, N.H. Buenning, J.T. Randerson, G.D. Farquhar, M.S. Torn, and J.A. Berry. The influence of clouds and diffuse radiation on ecosystem-atmosphere CO₂ and C¹⁸OO exchanges, *Journal of Geophysical Research - Biogeosciences*. 114, G01018, 2009.

Publications accepted:

Riley W.J., **S. Biraud**, M.L. Fischer, J.A Berry, M.S. Torn. Inter-annual Regional CO₂ and Latent Heat Surface Fluxes in the Southern Great Plains: Measurements, Modeling , and Scaling. Accepted for publication in *Journal of Geophysical Research- Biogeosciences*.

Publications submitted:

McMillan W.W., R. Pierce, L. C. Sparling, G. Osterman, K. McCann, M. L. Fischer, B. Rappengluck, R. Newsom, D. Turner, C. Kittaka, K. Evans, **S. Biraud**, B. Lefer. An Observational and modeling strategy to investigate the impact of remote sources on local air quality: A Houston, Texas case study from TEXAQS II.

Reports

Biraud S., Towards the regionalization of sources and sinks of greenhouse gases: analysis of the synoptic variability at Mace Head observatory, Ireland. University of Paris 7 (Denis-Diderot), France, **Ph.D. Thesis**, November 2000.

Jennings S.G., P. Ciais, **S. Biraud**, and M. Ramonet, Irish Greenhouse Gas Emissions. Environmental RTDI Programme 2000 - 2006, **Irish Environmental Protection Agency** report , 2003.

Ramonet M., P. Ciais, C. Bourg, V. Kazan, D. Picard, **S. Biraud**, M. Grall, R. Sarda, P. Chamaret, and P. Monfray. Technical Report: LSCE, France, **World Meteorological Organization / Global Atmosphere Watch** Report 132, 10-15, 1997.

Biraud S., Wind/wave structures in tropical cyclones observed with micro-wave instruments (ERS-1 and SSMI satellites). **End of study Report** , University of Paris 7 (Denis-Diderot), France, June 1995.

Biraud S., Contribution of middle infrared wavelengths to mapping deforestation along *Maroni* river (French Guyana). **End of study Report** , University of Paris 7 (Denis-Diderot), France, September 1995.

Special Skills

Computer skills: proficiency in programming (SHELL, PERL, C, FORTRAN, HTML).

Software: WORD, EXCEL, and IDL.

Languages:

Native language: FRENCH.

Other languages: ENGLISH (full working knowledge).

SPANISH (minimal working knowledge).

Hobbies: Flying (French private license), Scuba diving (divemaster).